



LIQUID PENETRANT TEST REPORT

P- 15195

CLIENT	<u>DART AEROSPACE</u>	DATE	<u>OCT-6-2010</u>	PAGE	<u>1</u> OF <u>1</u>
ATTENTION	<u>LINDA/CHANTEL</u>	ACUREN JOB NO.	<u>188-10-0905</u>	TIME	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>
ADDRESS	<u>1220 ABERDEEN ST.</u> <u>HAWKESBURY, ON.</u> <u>K6A 1K7</u>	PO/WO NO.	<u>TC703</u>	WORK LOCATION	<u>HAWKESBURY PLANT</u>
PROJECT	<u>F. P. I.</u>	ACCEPTANCE STD.	<u>ASTM 1417</u>	REV./DATE	<u>2005</u>
ITEM(S) EXAMINED	<u>(5) CROSS TUBES</u>				

JOB DESCRIPTION	PROCEDURE NO. LT-0002 REV./DATE	TECHNIQUE NO. LT- 6A2 REV./DATE
PART NO.	MATERIAL <u>ALUMINUM</u> THICKNESS <u>—</u>	
SCOPE	<u>WET FLUORESCENT PENETRANT INSPECTION CARRIED OUT ON 100% EXTERNAL SURFACE</u>	

TEST DETAILS					
METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>NASNAFLUX</u>		BLACK LIGHT S/N <u>16459</u>	<input type="checkbox"/> OUTPUT > 1000 μ W/cm ²	<input type="checkbox"/> AMBIENT < 2 fc
PENETRANT	<u>ZL67</u>	MINIMUM DWELL TIME <u>45 10</u> MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT	<input type="checkbox"/> OUTPUT > 100 fc @ SURFACE	
PENETRANT REMOVER	<u>H2O</u>	MINIMUM DRY TIME <u>>10</u> MIN.	OTHER <u>LAB NO</u>		
DEVELOPER	<u>SKD52</u>	MINIMUM DWELL TIME <u>10</u> MIN.	LIGHT METER S/N <u>1098866</u>	CAL DUE DATE <u>OCT-19</u>	<u>2010</u>
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY		

TEST SURFACE					
SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input checked="" type="checkbox"/> AS WELDED	<input type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<u>< -4°C/20°F</u>		<u>-4°C/20°F TO 10°C/50°F</u>	<input checked="" type="checkbox"/> <u>10°C/50°F TO 52°C/125°F</u>	<input type="checkbox"/> <u>> 52°C/125°F</u>

RESULTS- <input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL					
<u>1 - CLOSTUBE-W.O. 61069</u>	✓				
<u>1 - CLOSTUBE-W.O. 62144</u>	✓				
<u>1 - CLOSTUBE-W.O. 62145</u>	✓				
<u>1 - CLOSTUBE-W.O. 62153</u>	✓				
<u>1 - CLOSTUBE-W.O. 62154</u>	✓				

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

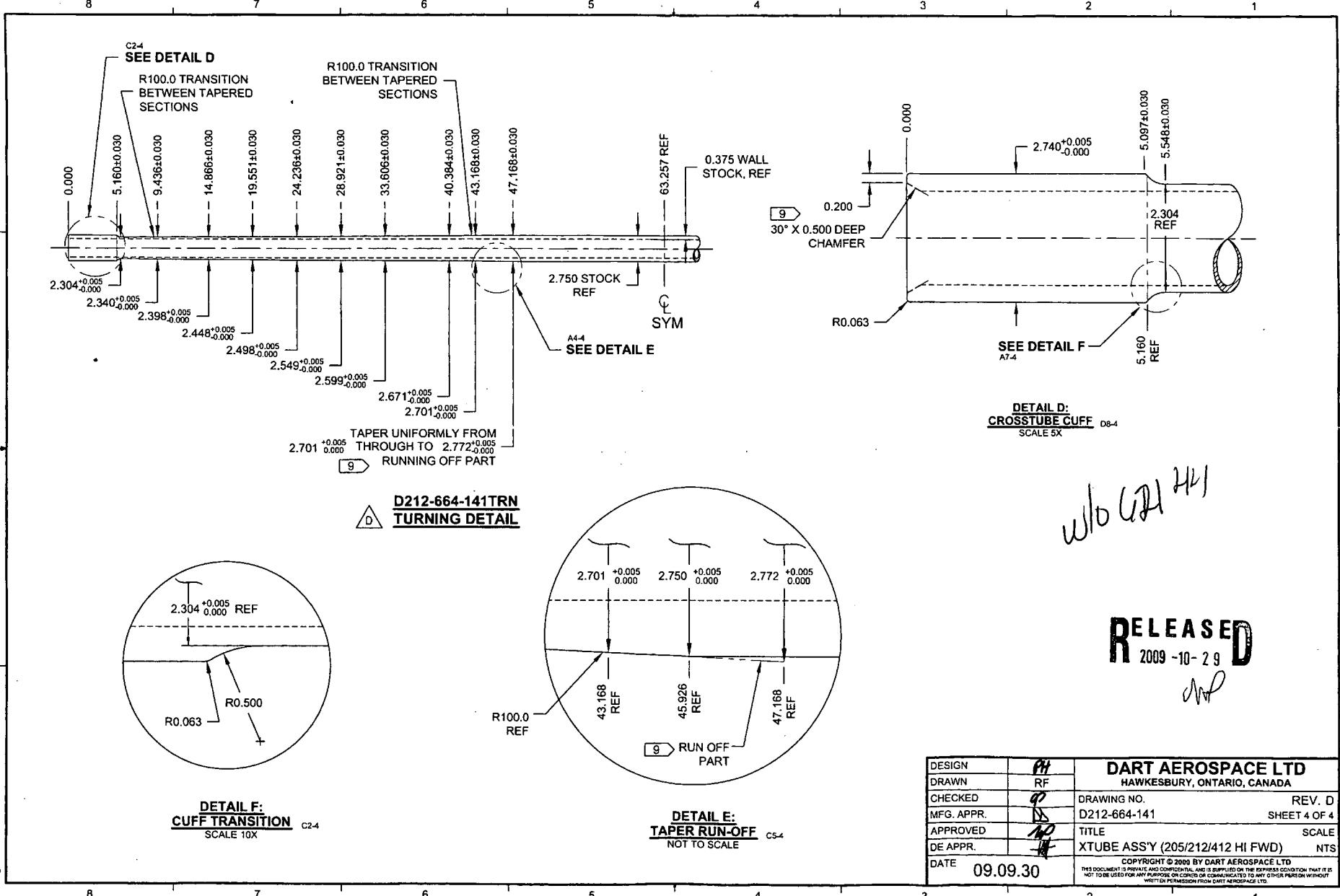
SIGNATURES					
CLIENT REPRESENTATIVE	<u>Matthew Murdoch</u>	PRINT	SIGNATURE	DTR # <u>E63395</u>	
TECHNICIAN (SIGNATURE):	<u>Mike Huston</u>			REPORT REVIEWED BY:	
NAME (PRINT):	<u>Mike Huston</u>	1 st TECHNICIAN	2 nd TECHNICIAN	NAME	INITIALS
CGSB LEVEL	<u>X</u>	SNT LEVEL	CGSB LEVEL	SNT LEVEL	
CGSB REG. NO.	<u>6666</u>			CGSB REG. NO.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



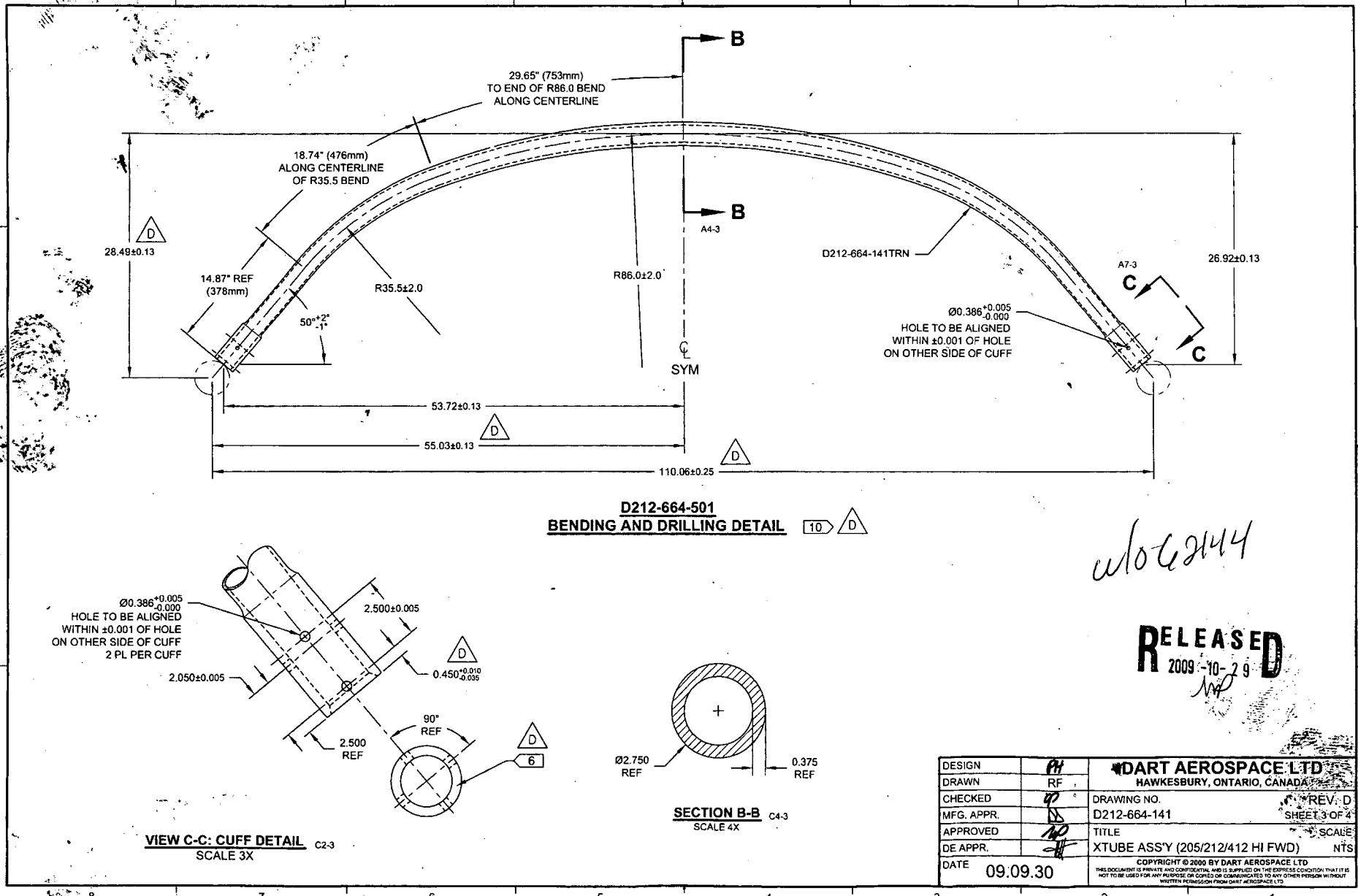
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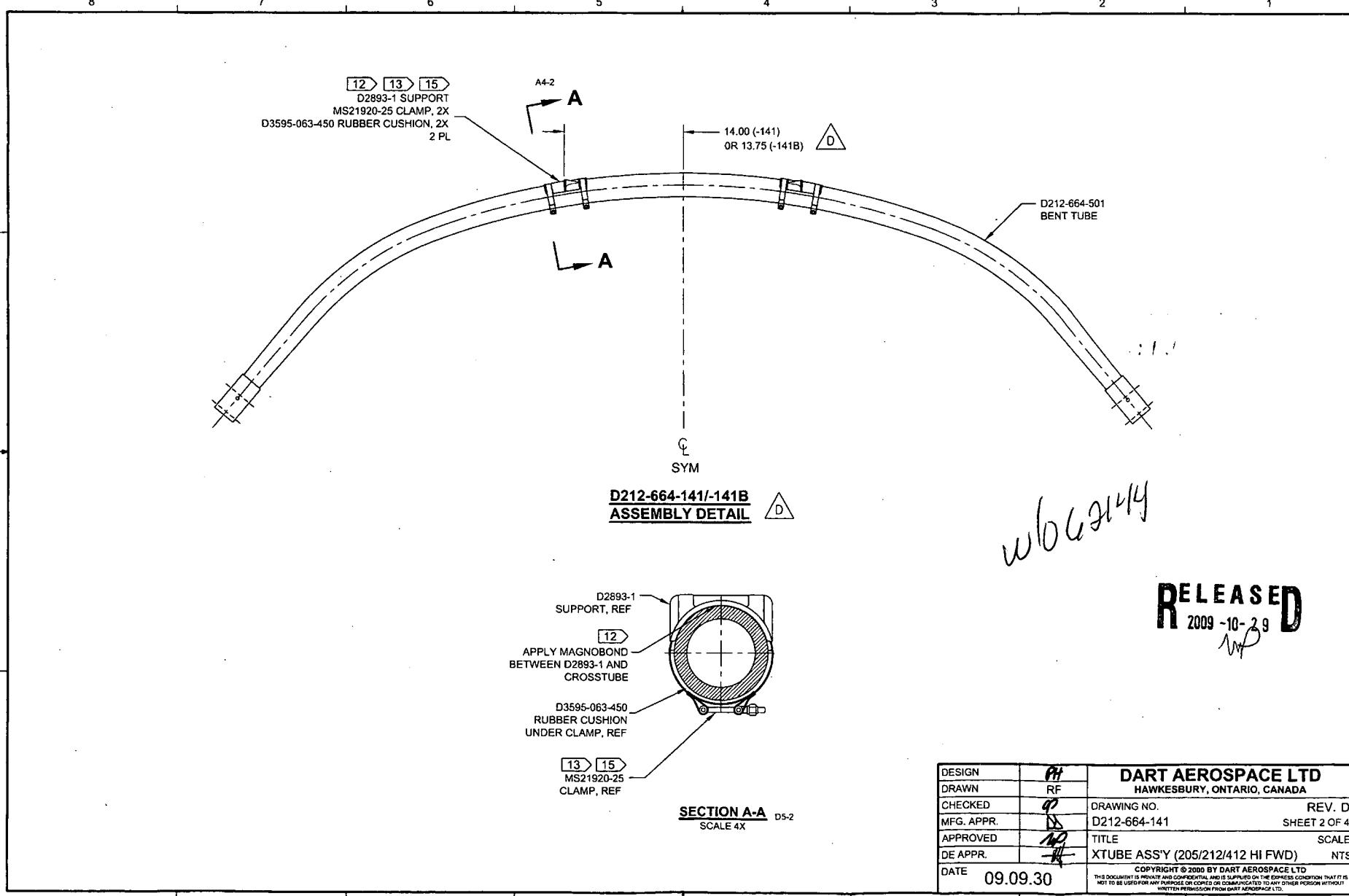
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8 7 6 5 4 3 2 1



Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514 ± 0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEER
UNCONTROLLED
SUBJECT TO
WITH
W/ NO. 62144-
B10-96

RELEASED
2009-10-29
MP

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REARRANGED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, CB-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	PH	DRAWING NO.	REV. D
MFG. APPR.	DA	D212-664-141	SHEET 1 OF 4
APPROVED	NP	TITLE	SCALE
DE APPR.	NP	XTUBE ASSY (205/212/412 HI FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD. THE DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS PROVIDED FOR INTERNAL USE ONLY. IT IS NOT TO BE USED FOR ANY PURPOSE, COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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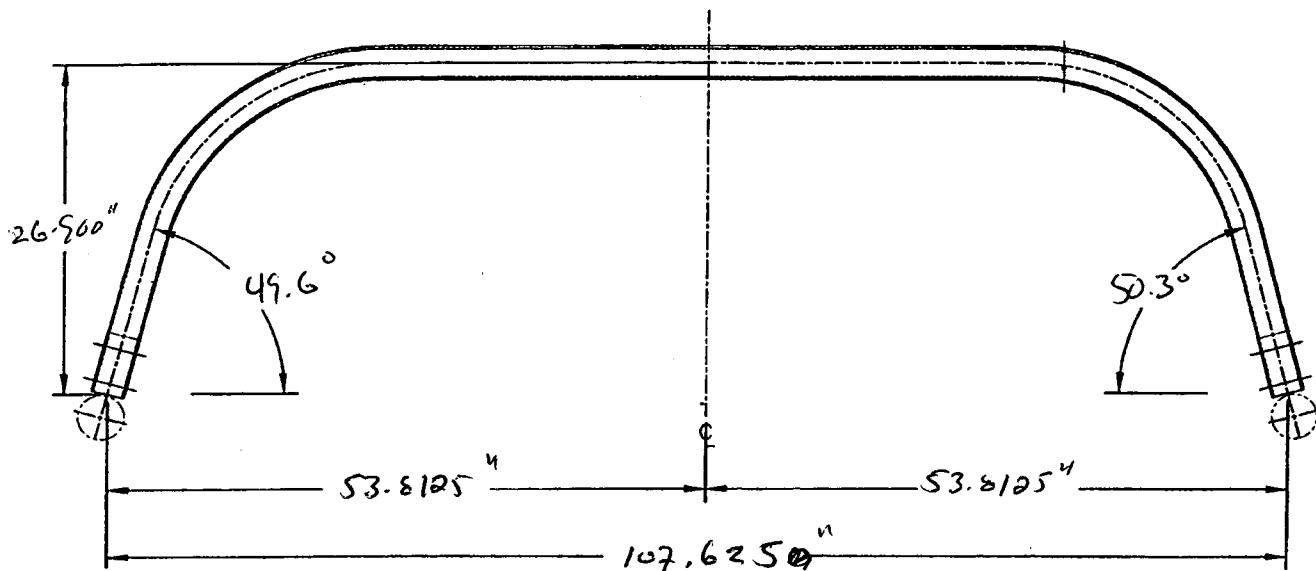
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NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	621414
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: D		Page 1 of 1

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



Comments

QC15 Inspection	S
Date	10/01/28

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	
C	10.04.01	Dwg Rev updated	KJ	Z

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NOTE: Date & initial all entries

Picklist Print

Page 3

Thursday, September 16, 2010 3:45:59 PM

Work Order ID: 62144



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 9/16/2010

Required Date: 9/30/2010

Start Qty: 1.00

Required Qty: 1.00

AN6-36A

Purchased

No

240

Each

40.0000

4

4



Bolt

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

ST343	40	
115016	40	

M115016

MS21042L6

Purchased

No

240

Each

268.0000

6



Nut

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

ST300	268	
111578	4	
114495	64	
115300	200	

M114495

AN960JD616

NAS1149D0663J Purchased

No

240

Each

0.0000

18



Washer

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

Page 2

Thursday, September 16, 2010 3:45:59 PM

Work Order ID: 62144



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 9/16/2010

Required Date: 9/30/2010

Start Qty: 1.00

Required Qty: 1.00

MS21920-25



Purchased No

220

Each

79.0000

4

4



Clamp(per MIL-DTL-8783C)

MJ 10-10-07

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

LG	55	
----	----	--

113281	0	
--------	---	--

114759	5	
--------	---	--

<u>114901</u>	25	
---------------	----	--

115278	25	
--------	----	--

ST451	24	
-------	----	--

113281	5	
--------	---	--

113282	18	
--------	----	--

113744	1	
--------	---	--

D2893-1



Manufactured No

220

Each

27.0000

2



2.75 Support

MJ 10-10-07

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

LG	27	
----	----	--

<u>56354</u>	8	
--------------	---	--

<u>59457</u>	19	
--------------	----	--

D3428-1



Manufactured No

240

Each

0.0000

1

*62096**C 10/10/13*

Placard

AN6-35A

Purchased No

240

Each

31.0000

4



<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

ST343	31	
-------	----	--

115204	31	
--------	----	--

M115204

W/O:		WORK ORDER CHANGES					
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Picklist Print

Page 1

Thursday, September 16, 2010 3:45:59 PM

Work Order ID: 62144



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 9/16/2010

Required Date: 9/30/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:E 04.02.16 Reformat KJ/DS

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D212-664-101TRN



Manufactured

No

110

Each

2.0000

1

1

Crosstube Turning Detail

Location	Loc Qty	Loc Code
LG	2	①
61854	1	DD
61855	1	109-28

D3595-063-450



Manufactured

No

230

Each

123.6590

4

4.210526

RUBBER CUSHION

Location	Loc Qty	Loc Code
LG	123.6589737	
53775	5.97897368	
58161	3.56	
59580	10.12	
60983	25	
61465	79	

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Work Order ID 62144

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Thursday, September 16, 2010 3:45:55 PM

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 9/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

250



QC

Quality Control

QC4- 100% Inspect kits for completeness

0.00

10/10/13

(70)

260



Packaging

0.00

Packaging

Memo

0.00

Identify and pack for shipping as per PPP D212-664-101

Rev E

Cp 10/10/13 J

270



QC21- Final Inspection - Work Order Release

0.00

Quality Control

Memo

0.00

10/10/13 J

VMF
10-10-13

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Work Order ID 62144

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Thursday, September 16, 2010 3:45:55 PM

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 9/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

220



Crosstubes

Crosstubes

Memo

0.00

ml 10 10 07 0

Crosstubes

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area

with 41058 wash 'n' wipe

2-Install supports with magnobond as per QSI 015 Adhere for 12 Hrs

A/R 6398 Magnobond Batch: 114158 Exp: 01/2011*Torque: M10/10/08 0*

230



QC5- Inspect part completeness to step on W/O

0.00

S 10/10/12

QC

Quality Control

Memo

0.00

(+)

240



Pick Kit

0.00

Packaging

Packaging

Memo

0.00

B 10/10/13 0

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Thursday, September 16, 2010 3:45:55 PM

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 9/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop


**Sequence ID/
Work Center ID**
**Operation
Description**
**Set Up/
Run Hours**
Tool ID
Tool #
**Plan
Code**
**Accept
Qty**
**Reject
Qty**
**Reject
Number**
**Insp.
Stamp**

200



SprayPaint

Spray Painting per QSI005 4.2

0.00

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 9:30Finish Time: 10:30

PAINT:

Start Time: 3:00Finish Time: 4:30

210



QC14- Inspect Spray Paint

0.00

QC

Quality Control

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

WL 10 10 06 (1)

ST 10-10-07 (61)

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62144

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Thursday, September 16, 2010 3:45:55 PM

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 9/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop


**Sequence ID/
Work Center ID**
**Operation
Description**
**Set Up/
Run Hours**
Tool ID
Tool #
**Plan
Code**
**Accept
Qty**
**Reject
Qty**
**Reject
Number**
**Insp.
Stamp**

180



Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

0.00

Packaging

Memo

0.00

Ensure copy of NDT results attached to work order.

190



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Inspect for damage & ensure results are as per Dwg D212-664-141

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62144



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Thursday, September 16, 2010 3:45:55 PM

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 9/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____

Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____

SPC (Y/N): _____ Date: _____

Stop



Sequence ID/
Work Center ID

150



HandFXtube

Hand Finishing Crosstubes

Operation
Description

Crosstubes Chemical Conversion

Set Up/
Run Hours

0.00

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

(1)

SAD
10-10-04

160



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Si alulos

(4)

170



Outsource2

Outsource process - NDT

Outsource process - NDT per QSI038 4.1

0.00

Memo

0.00

Liquid Penetrant Inspection as per QSI 038
Issue P/O: 12703
LPI as per ASTM 1417 Level 2
Attach copy of NDT results to work order

CZ 10/10/04 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 62144



Page 2

Thursday, September 16, 2010 3:45:55 PM

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd

Start Date: 9/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____

Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____

SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
Description

QC15- Crosstube Dimensional Check

Set Up/
Run Hours

0.00

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130



QC

Quality Control

140



Crosstubes

Memo

0.00

S10109/200



0.00

Crosstubes

Memo

0.00

Crosstubes

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549,using drill table DT8577, set-up towers in hole #7 as per QSI 10

2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

SPD
10-09-2009

EL 10-10-5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62144

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Page 1

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 9/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date: 10-9-16

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D212-664-141	Rev D								

100



DOCUMENT CONTROL

DC

Document Control

Memo

0.00

0.00

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

Srd/10/13

HJ for BG 10-10-12

110



Pick Kit

Packaging

0.00

Memo

0.00

Packaging

Packaging

10-9-28

120



BENDING MACHINE - CROSSTUBES

CNC Bend 2

CNC Alpha 160 Bender

0.00

Memo

0.00

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

10-9-28
